

## ABSTRACT OF THE DISCLOSURE

A method of forming an assembly of isolated nanowires of at least one material within a matrix of another material is provided. The method comprises:

5 providing a substrate; forming a catalyst array on a major surface of the substrate; growing an array of the nanowires corresponding with the catalyst array, the nanowires, each comprising at least one material; and forming a matrix of another material that fills in spaces between the nanowires. The method is useful for

10 bandgap structures and quantum dot structures.